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Annual Report from the sentinel surveillance of blood borne virus testing in England: data for January to December 2018

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Sentinel surveillance of blood borne virus testing in England: data for January to December 2018

Background

This report provides summary data for individuals who had tests reported to the sentinel surveillance programme during 2018. Sections 1 to 7 describes testing and demographic information for individuals tested by venepuncture for hepatitis A to E, HIV, and HTLV.

The sentinel surveillance of blood borne virus testing began in 2002, with the aim of supplementing the routine surveillance of hepatitis. Information on the testing carried out in participating centres is collected irrespective of test result and can therefore also be used as a basis for estimating prevalence among those tested. These data have enhanced our knowledge and understanding of hepatitis testing, in terms of who is being tested and from which service types individuals are accessing testing, and also in interpreting trends in the number of positive individuals identified over time. In 2018, sentinel surveillance captured front-line testing for hepatitis A, B, C and HIV, covering approximately 40% of the population, and over 80% of the population from all 9 PHECs tested for hepatitis D, E and HTLV.

Changes to data processing means that we are now able to present the number of tests conducted alongside the number of individuals tested within a year, The proportion positive is calculated among individuals tested.

The supplementary tables referred to in this report are available on the GOV.UK website page “Sentinel surveillance of blood borne virus testing in England: 2018”.

1. Hepatitis A IgM testing

In 2018, 17 participating centres supplied hepatitis A-specific IgM antibody (anti-HAV IgM) testing data (a marker of acute infection). Overall 45,481 individuals were tested at least once for anti-HAV IgM, of whom 260 (0.6%) tested positive (*Supplementary Table 1*). The age and gender of individuals tested was well reported (>99.1% complete). Males accounted for 52.6% of individuals testing, with a positivity of 0.6% for both males and females. Among all individuals testing, the highest proportion of tests were among those aged between 25 and 34 years (19.5%), with a similar proportion among those aged 65 years and older (19.3%). However, positivity was highest among children aged 1-14 years (4.7%) (*Supplementary Table 2*). The median age of individuals undergoing testing was 45 years (IQR 31 – 60) whereas the median age of individuals testing positive was 36 years (IQR 22– 64).

The type of service which requested the hepatitis test was identified using the record location of the requestor (table 1). Where known (n=46,395), general practice tested the greatest proportion of individuals for anti-HAV IgM (45.2%), with a further 21.8% tested in other known hospital wards, and 8.0% tested in general medical/surgical departments. Positivity was highest in individuals testing in paediatric services (3.3%), unspecified wards (2.1%), and accident and emergency (1.8%).

Table 1. Number of individuals tested, and testing positive for anti-HAV IgM in participating centres by service type, January – December 2018*

Service type	Number of individuals tested	Number positive (%)
Primary Care		
Accident and emergency	3,141	58 (1.8)
Drug dependency services	108	0 (0.0)
General practitioner	20,951	59 (0.3)
GUM clinic	1,777	6 (0.3)
Occupational health	36	0 (0.0)
Prison services	117	0 (0.0)
Pharmacy	1	0 (0.0)
Total primary care [≠]	26,061	123 (0.5)
Secondary Care		
Antenatal	610	0 (0.0)
Fertility services	188	0 (0.0)
General medical/surgical departments	3,708	39 (1.1)
Obstetrics and gynaecology	1,154	1 (0.1)
Other ward type (known service) [†]	10,111	38 (0.4)
Paediatric services	915	30 (3.3)
Renal	573	2 (0.3)
HIV	76	0 (0.0)
Specialist infectious disease services	2,215	9 (0.4)
Unspecified ward [§]	714	15 (2.1)
Total secondary care [≠]	19,889	134 (0.7)
Unknown [#]	58	3 (5.2)

* Excludes reference testing and testing from hospitals referring all samples. Data are de-duplicated subject to availability of date of birth, soundex and first initial. All data are provisional. An individual can test in more than one service type.

[†] Other ward types includes cardiology, coroner, dermatology, haematology, ultrasound, x-ray.

[§] These are hospital services which are currently being investigated to identify specific service type, and may include any of the secondary care services mentioned above.

[#] These services are currently being investigated to identify specific service type, where possible.

[≠] Totals for individuals testing in primary and secondary care, does not equal the sum of the individuals testing in each setting within primary and secondary care, as an individual can test in more than one setting.

2. Hepatitis B surface antigen testing

Sentinel surveillance collects data on testing for hepatitis B surface antigen (HBsAg). All pregnant women in the UK are offered hepatitis B virus (HBV) screening as part of their antenatal care. Data from the test request location and free text clinical details field accompanying the test request were reviewed to distinguish individuals tested for HBsAg as part of routine antenatal screening (section 2a) from those tested in other settings and for other reasons (section 2b). It is possible that some women undergoing antenatal screening may not be identified as such and may therefore be included in section 2b as non-antenatal testing.

a. Antenatal HBsAg screening

In 2018, 133,236 women aged between 12 and 49 years old were identified as undergoing at least one antenatal screening for HBsAg, representing 21.0% of all individuals tested for HBsAg in participating sentinel centres. Overall 350 (0.3%) of these women tested positive. The median age of women tested was 30 years (IQR 26 – 34) and the median age of women testing positive was 30 years (IQR 26 – 35).

A HBeAg result was available for 94.9% (332) of HBsAg positive women, and of these, 1.2% were HBeAg positive.

b. Non-antenatal HBsAg testing

In 2018, 502,227 samples were tested for HBsAg, excluding antenatal screening, in 19 participating sentinel centres, equating to 417,617 individuals. Overall, 3,958 (0.9%) individuals tested positive, with the highest positivity in the West Midlands (1.4%) (*Supplementary Table 4*). This may reflect more targeted testing of risk groups and/or genuinely higher prevalence of HBV in people being tested in this PHEC.

The age and gender of individuals tested for HBsAg was well reported (>98.7% complete). Where known, more males (52.9%) were tested than females (*Supplementary Table 5*). The number of females tested may include some undergoing routine antenatal screening who could not be identified as such from the information provided. Positivity was higher among males compared to females (1.1% vs 0.7% $p<0.001$). Among all individuals testing the highest proportion of tests (26.6%) were among those aged between 25 and 34 years, followed by those aged between 35 and 44 years (21.2%). The highest positivity was among those aged under 1 (1.4%), followed by those aged between 35 and 44 years and between 45 and 54

years (both 1.2%). The median age of individuals tested was 38 years (IQR 29 -54) and testing positive was 38 years (IQR 30 – 48).

Where known (n=431,634), the greatest proportion of individuals tested for HBsAg were from general practice (22.5%), with a further 20.1% tested in other known hospital wards and 10.3% tested in GUM services (table 2). Whereas, positivity was highest among individuals testing in unspecified wards, specialist liver services and pharmacies (2.5%, 2.2%, 1.8% respectively).

Table 2. Number of individuals tested, and testing positive for HBsAg in participating centres by service type (excluding antenatal testing), January – December 2018*

Service type	Number of tests	Number of individuals tested	Number positive (%)
Primary Care			
Accident and emergency	33,304	32,354	212 (0.7)
Drug dependency services	22,410	22,120	114 (0.5)
General practitioner	100,339	97,142	1,024 (1.1)
GUM clinic	47,590	44,657	532 (1.2)
Occupational health	17,317	16,693	76 (0.5)
Prison services	34,489	30,959	401 (1.3)
Pharmacy	1,593	1,463	27 (1.8)
Total primary care [≠]	257,042	243,685	2386 (1.0)
Secondary Care			
Fertility services	18,599	17,007	83 (0.5)
General medical / surgical departments	15,864	14,589	79 (0.5)
Obstetrics and gynaecology	21,941	20,561	65 (0.3)
Other ward type (known service) [†]	97,084	86,831	628 (0.7)
Paediatric services	5,425	4,976	35 (0.7)
Renal	59,192	19,443	102 (0.5)
Specialist HIV services	1,001	946	15 (1.6)
Specialist liver services	14,307	13,253	298 (2.2)
Unspecified ward [§]	9,682	8,640	218 (2.5)
Total secondary care [≠]	243,095	178,364	1523 (0.9)
Unknown [#]	2,090	1,966	49 (2.5)

* Excludes oral fluid, reference testing and testing from hospitals referring all samples. Data are de-duplicated subject to availability of date of birth, soundex and first initial. All data are provisional. An individual can test in more than one service type. The proportion positive is calculated using number of individuals. Number of tests includes all tests until a person is diagnosed positive, no tests are counted after a positive test, a person can be counted more than once.

[†] Other ward types includes cardiology, coroner, dermatology haematology, ultrasound, x-ray.

[§] These are hospital services which are currently being investigated to identify specific service type, and may include any of the secondary care services mentioned above.

[#] These services are currently being investigated to identify specific service type, where possible

[≠] Totals for individuals testing in primary and secondary care, does not equal the sum of the individuals testing in each setting within primary and secondary care, as an individual can test in more than one setting.

3. Hepatitis C antibody testing

Sentinel surveillance collects data on testing for hepatitis C-specific antibodies (anti-HCV), a marker of ever having a hepatitis C (HCV) infection. It is important to note that no laboratory methods are currently available to distinguish definitively between acute or chronic HCV infections. Therefore, positive anti-HCV results do not therefore necessarily represent incident or current infections, with a HCV PCR test required to identify a current infection.

In 2018, 479,253 samples were tested for anti-HCV in 19 participating sentinel centres, equating to 405,049 individuals. Overall, 10,504 (2.6%) individuals tested positive. This varied by PHEC, with the highest positivity in the West Midlands (4.0%) (*Supplementary Table 6*), and Operational Delivery Network (ODN), with the highest positivity in South Yorkshire ODN (39.5%) (*Supplementary table 7*). This may reflect testing coverage, more targeted testing of risk groups and/or genuinely higher prevalence of HCV in people being tested in this geography.

Of those individuals testing positive for anti-HCV (n=10,504), 8030 were tested for HCV RNA on the same day or after their anti-HCV positive test. Among persons HCV RNA tested after a positive anti-HCV test, 49.0% (n=3900) were positive, of whom 34.5 % (n=1359) had a HCV genotype recorded; 49.0% were genotype 1, with a further 43.7% genotype 3.

Age and gender were well reported (>98.8% complete). Males represented 58.2% of all persons tested, with a higher positivity in males compared to females (3.2% vs 1.7% respectively, $p<0.001$). The highest proportion of tests (25.2%) were among those aged between 25 and 34 years, followed by those aged between 35 and 44 years (21.5%). Whereas the highest positivity was among those aged between 35 and 44 years and 45 and 54 years, both with 4.3%. (*Supplementary Table 8*). The median age of those tested was 39 years (IQR 29 – 54 years), whereas the median age of those tested positive was 41 years (IQR 35 – 49 years).

Where known (n=408,207), the greatest proportion of individuals tested for anti-HCV were from general practice (20.6%), with a further 18.9% from other known hospital wards and 15.2% from GUM (table 3). The highest positivity was among individuals testing in specialist drug services (19.2%), pharmacies (10.3%) and prisons (5.6%).

Table 3. Number of individuals tested, and testing positive for anti-HCV in participating centres by service type, January – December 2018*

Service type	Number of tests	Number of Individuals tested	Number positive (%)
Primary Care			
Accident and emergency	35,119	32,250	395 (1.2)
Drug dependency services	22,554	22,298	4,276 (19.2)
General practitioner	88,696	83,982	1,395 (1.7)
GUM clinic	73,471	61,983	644 (1.0)
Occupational health	16,731	15,506	39 (0.3)
Prison services	32,381	29,395	1,636 (5.6)
Pharmacy	1,446	1,334	137 (10.3)
Total primary care [‡]	270,398	245,720	8,522 (3.5)
Secondary Care			
Antenatal	6,580	6,059	64 (1.1)
Fertility services	17,452	15,875	31 (0.2)
General medical / surgical departments	16,038	13,013	189 (1.5)
Obstetrics and gynaecology	9,570	8,250	31 (0.4)
Other ward type (known service) [†]	89,090	77,298	922 (1.2)
Paediatric services	4,761	4,054	38 (0.9)
Renal	38,485	15,764	74 (0.5)
Specialist HIV services	2,919	2,226	34 (1.5)
Specialist liver services	15,251	12,440	334 (2.7)
Unspecified ward [§]	7,529	6,480	220 (3.4)
Total secondary care [‡]	207,675	160,372	1,937 (1.2)
Unknown [#]	1,180	1,076	45 (4.2)

* Excludes oral fluid, reference testing and testing from hospitals referring all samples. Individuals aged less than one year are excluded since positive tests in this age group may reflect the presence of passively-acquired maternal antibody rather than true infection. Data are de-duplicated subject to availability of date of birth, soundex and first initial. All data are provisional. An individual can test in more than one service type. The proportion positive is calculated using number of individuals. Number of tests includes all tests until a person is diagnosed positive, no tests are counted after a positive test, a person can be counted more than once.

† Other ward types includes cardiology, coroner, dermatology haematology, ultrasound, x-ray

§ These are hospital services which are currently being investigated to identify specific service type, and may include any of the secondary care services mentioned above.

These services are currently being investigated to identify specific service type, where possible

‡ Totals for individuals testing in primary and secondary care, does not equal the sum of the individuals testing in each setting within primary and secondary care, as an individual can test in more than one setting.

4. Hepatitis D total antibody testing

Sentinel surveillance collects data on testing for hepatitis D-specific total antibody (HDV TA) and A-specific IgM antibody (anti-HDV IgM), a marker of acute hepatitis D (HDV) infection. Seven sentinel laboratories provide HDV testing facilities. Given the small number of tests individuals tested for HDV TA and/or HDV IgM are aggregated, and therefore do not necessarily represent incident infections, and be interpreted accordingly. Data are shown by region of the requesting service.

In 2018, 4,221 individuals were tested at least once for HDV TA and/or HDV IgM, and 168 (4.0%) individuals tested positive, this varied by PHEC with the highest positivity in the North West (6.3%), followed by the West Midlands (5.1%), (*Supplementary table 9*).

The age and gender of individuals tested for HDV was well reported (>97.1% complete). Where known, slightly more males were tested than females (53.5%). The positivity among males and females testing for HDV TA and/or HDV IgM was similar (4.0% and 3.6% respectively, $p=0.51$). The highest proportion of tests were among those aged between 25 and 34 years (30.2%), with a similar proportion among those aged between 35 and 44 years (29.8%). Positivity was highest among those aged between 25 and 34 years (5.4%), followed by those aged between 25 and 34 years (5.4%). The median age of individuals tested was 38 years (IQR 31 – 48) and the median age of individuals testing positive was 36 years (IQR 30 – 45).

The greatest proportion of individuals (82.0%) were tested by a hospital which referred all HDV samples to a sentinel centre. In these cases the service that originally requested the test could not be determined. A further 7.9% tested in other known hospital wards, and 2.4% tested in general practice.

5. Hepatitis E IgM testing

Sentinel surveillance collects data on testing for hepatitis E-specific IgM antibody (anti-HEV IgM), a marker of acute hepatitis E (HEV) infection. Ten sentinel laboratories provide HEV testing facilities. Recent HEV testing guidelines and increased disease awareness have resulted in more sentinel laboratories testing for HEV.

In 2018, 21,582 individuals were tested at least once for anti-HEV IgM. Overall, 684 (3.2%) individuals tested positive, although this varied by PHEC with the positivity in in the North West (23.7%)(*Supplementary Table 10*).

The age and gender of individuals tested for anti-HEV IgM was well reported (>98.6% complete). Where known, slightly more males were tested than females (52.0%), with a higher positivity among males compared to females (3.8 % vs. 2.4% respectively, $p<0.001$). The highest proportion of tests were among those aged 65 years and older (25.5%), followed by those aged between 45 and 54 years and 55 and 64 years, both with 17.1% of tests. Positivity was also highest in these three age groups at 3.9%, 3.3%, and 4.3% respectively. The median age of individuals tested was 51 years (IQR 34 – 65) and the median age of individuals testing positive was 57 years (IQR 43 – 67.5).

Overall 4.9% (287/5,890) of males aged 50 or over tested for anti-HEV IgM were positive, compared to 2.6% (139/5,255) among those under the age of 50. A similar pattern was seen among females, where 3.0% (156/5263) of females aged 50 or over tested positive compared to 1.8% (90/5004) among those under the age of 50.

Where known (n=21,834), the greatest proportion of individuals (57.4%) were tested by a hospital which referred all HEV samples to a sentinel centre. In these cases the service that originally requested the test could not be determined. A further 11.4% tested in other known hospital wards, and 8.9% tested in unknown hospital wards.

6. HIV testing

Sentinel surveillance collects data on testing for HIV. All pregnant women in the UK are offered HIV screening as part of their antenatal care. Data from the test request location and free-text clinical details field accompanying the test request were reviewed to distinguish individuals tested for HIV as part of routine antenatal screening (section 6a) from those tested in other settings and for other reasons (section 6b). It is possible that some women undergoing antenatal screening may not be identified as such and may therefore be included in section 6b as non-antenatal testing.

a. Antenatal HIV screening

In 2018, 113,481 women aged between 16 and 49 years old were identified as undergoing antenatal screening at least once for HIV, representing 15.1% of all individuals tested for HIV in participating sentinel centres (*Supplementary Table 11*). Overall, 118 (0.1%) of these women tested positive. The median age of women tested was 30 years (IQR 26 – 34) and the median age of women testing positive was 32.5 years (IQR 28 – 38).

b. Non-antenatal HIV screening

In 2018, 750,313 samples were tested for HIV, excluding antenatal screening, in 17 participating sentinel centres, equating to 637,653 individuals (adults aged 16 years and over). Overall, 3,452 (0.5%) individuals tested positive, although this varied by PHEC with the highest positivity in the West Midlands (0.8%) (*Supplementary Table 12*). The age and gender of adults tested for HIV was well reported (>99.1% complete). Where known, similar numbers of females (51.1%) were tested compared to males (48.9%) (*Supplementary Table 13*). The number of females tested may include some undergoing routine antenatal screening who could not be identified as such from the information provided. Positivity was higher in males compared to females (0.8% vs 0.2% $p < 0.001$). A third of all individuals tested (32.3%) were aged between 25 and 34 years followed by 21.4% aged between 15 and 24 years. Positivity was highest in those aged between 45 and 54 years (1.0%), followed by those aged between 35 and 44 years and 55 and 64 years, both 0.7%. The median age of individuals tested was 33 years (IQR 26 – 46) and the median age of individuals testing positive was 39 years (IQR 30 – 49).

Where known (n=657,827), the greatest proportion of individuals tested for HIV were from GUM clinics (32.5%), with a further 14.3% tested in accident and emergency departments and 13.5% tested in general practice (table 4). The highest positivity was among individuals tested in specialist HIV services (6.1%), specialist liver services (1.4%) and unspecified wards and accident and emergency departments, both 0.7%.

Table 4. Number of adults (16+ years old) tested and testing positive for HIV in participating centres by service type (excluding antenatal testing), January – December 2018*†.

Service type	Number of tests	Number of individuals tested	Number positive (%)
Primary Care			
Accident and emergency	105,287	93,798	646 (0.7)
Drug dependency services	19,093	18,942	1 (0.01)
General practitioner	92,497	88,555	201 (0.2)
GUM clinic	255,352	213,848	1,296 (0.6)
Occupational health	14,752	13,967	18 (0.1)
Prison services	18,828	17,172	81 (0.5)
Pharmacy	2	2	0 (0.0)
Total primary care#	505,811	440,880	2243 (0.5%)
Secondary Care			
Fertility services	41,909	35,409	95 (0.3)
General medical / surgical departments	25,030	22,896	98 (0.4)
Obstetrics and gynaecology	20,731	19,520	19 (0.1)
Other ward type (known service)†	91,396	84,324	394 (0.5)
Paediatric services	5,506	5,362	17(0.3)
Renal	28,004	15,116	34 (0.2)
Specialist HIV services	4,996	4,972	305 (6.1)
Specialist liver services	9,721	8,972	129 (1.4)
Unspecified ward§	15,159	14,374	104 (0.7)
Total secondary care#	242,452	204,596	1195 (0.6)
Unknown#	2,050	1,989	14 (0.7)

* Excludes individuals aged under 16, antenatal screening, oral fluid testing, reference testing and testing from hospitals referring all samples. Data are de-duplicated subject to availability of date of birth, soundex and first initial. All data are provisional. An individual can test in more than one service type. The proportion positive is calculated using number of individuals. Number of tests includes all tests until a person is diagnosed positive, no tests are counted after a positive test, a person can be counted more than once.

† Other ward types includes cardiology, coroner, dermatology haematology, ultrasound, x-ray.

§ These are hospital services which are currently being investigated to identify specific service type, and may include any of the secondary care services mentioned above.

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≠ Totals for individuals testing in primary and secondary care, does not equal the sum of the individuals testing in each setting within primary and secondary care, as an individual can test in more than one setting.

7. HTLV testing

In 2018, 11,990 individuals were tested at least once for HTLV-1 specific antibodies in 10 participating sentinel centres. Overall, 158 (1.3%) individuals tested positive, although this varied by PHEC with the highest positivity in the West Midlands (3.7%). It is likely that individuals in the West Midlands were tested due to the presentation of HTLV-like symptoms, and very few individuals were tested from this region, (*Supplementary Table 14*).

The age and gender of individuals tested for HTLV-1 was well reported (>97.2% complete) (*Supplementary Table 15*). Where known, slightly more males were tested than females (54.9%), with positivity higher in females compared to males (1.7% vs. 0.8% respectively, $p<0.001$). The highest proportion of tests were among those aged 65 years and over (21.3%), followed by those aged between 55 and 64 years (21.2%). Positivity was highest among those aged between 1 and 14 years (1.9%), followed by those aged between 55 and 64 years (1.6%) and those aged 65 years and over (1.4%). The median age of individuals tested was 51 years (IQR 35 – 63) and the median age of individuals testing positive was 56 years (IQR 38 – 66).

The greatest proportion of individuals (38.9%) were tested in other ward type, with a further 21.4% by a hospital which referred all HTLV samples to a sentinel centre and 14.8% in renal services.

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